

REMARKS/ARGUMENTS

The present amendment is in response to the Office Action dated April 14, 2006. Applicant has also filed, herewith, a one month extension of time, and an exhibit (Exhibit A).

Claims 1-14 and 17-27 are active in the present application. Claims 15 and 16 have been canceled. Claims 1-6, 9, 11-14 and 17 have been currently amended, and new Claims 23-27 have been added. Support for the amended and new claims can be found throughout the specification and in the original claims. Claims 2-6, 9, 11 and 12 were amended to clarify the claim language. Particular support for amended Claims 1 and 13 can be found on pages 6, 11 and 12 of the specification. Particular support for amended Claims 14 and 17 can be found on page 11 of the specification. Particular support for new Claim 23 can be found on page 21 of the specification. Particular support for new Claims 24-27 can be found on pages 1, 3, 12 and 16 of the specification. No new matter is believed to have been introduced by the amended and new claims.

Double Patenting Rejection

The Examiner provisionally rejected Claims 1-22 under the judicially created doctrine of obviousness-type double patenting, as unpatentable over claims 19-40 of copending U.S. Application No. 10/915,011. Applicants respectfully submit that a Terminal Disclaimer in reference to U.S. Application No. 10/915,011 (U.S. Publication No. 2005/0009942) was filed with Applicants' Amendment, dated January 30, 2006. In addition, Terminal Disclaimers in reference to U.S. Patent 6,548,600 and U.S. Patent 6,774,186 were also filed with Applicants' Amendment dated January 30, 2006.

The Examiner has asserted that the attorney, who signed the above Terminal Disclaimers, Ray Ashburg (Reg. No. 53,956), is not of record in the instant case. Applicants have attached herewith, as Exhibit A, a "Notice of Customer Number Record Change" from the U.S.P.T.O., and dated January 19, 2006. This notice lists Mr. Ashburg's U.S.P.T.O. registration number, as one of several numbers of practitioners assigned to The Dow Chemical Company. Applicants note that the

Terminal Disclaimers, as discussed above, were filed on January 30, 2006, after the customer number record change became effective.

Therefore, Applicants request that the Terminal Disclaimers noted above be entered in the present case, and request the withdrawal of the Double Patenting rejection.

Claim Rejection under 35 U.S.C. § 102(b), § 102(e) and § 103(a)

The Examiner rejected Claims 1-22 under 35 U.S.C. § 102(b) or § 102(e), as anticipated by, or in the alternative, under 35 U.S.C. § 103(a), as unpatentable over, U.S. Patent 6,548,600 (Walton), U.S. Publication No. 2002/0082328 (Yu et al.), European Patent Application No. EP 0 672 712A (Yasuhiro et al.), International Publication No. WO 02/24803 (Walton) or U.S. Patent 6,087,431 (Uchida et al.). Applicants respectfully traverse for the following reasons.

U.S. Publication No. 2002/0082328 (hereinafter “Yu”) discloses polypropylene resin compositions comprising 30 to 70 weight percent of a polypropylene resin, and 10 to 30 weight percent of an ethylene/α-olefin elastomer (see paragraphs [0009]-[0014]). Yu does not teach or suggest the combination of features in each of Claims 1, 13, 14 and 17, and thus, does not teach or suggest the claimed invention.

Pending Claims 1 and 13 recite an elastomer composition comprising 60 to 90 weight percent of the elastomer component, and 10 to 40 weight percent of the polypropylene component. Thus, contrary to Yu, the claimed compositions contain a majority amount of the elastomer component, relative to the polypropylene component. The examples of Yu contain much higher amounts of the polypropylene component (65-70 wt%), and significantly low amounts of the elastomer component (5-15 wt%), as shown in Table 5 of this reference. Also, Yu desires high levels of polypropylene, greater than 30 weight percent, to avoid degrading the formability of the polypropylene resin composition (see paragraphs [0019] and [0020]). Thus, Yu teaches away from compositions containing less than 30 weight percent of the disclosed polypropylene. Moreover, Yu does not teach or suggest the respective order of addition of the composition components as recited in Claims 14 and 17.

Therefore, for at least these reasons, reference Yu does not teach or suggest the claimed invention.

European Patent Application No. EP-A 0 672 712A to Yasuhiro et al. (hereinafter Yasuhiro) discloses a polypropylene resin composition comprising 50 to 90 parts by weight of a polypropylene, and 0 to 25 parts by weight of an olefin copolymer rubber (see abstract and page 4, lines 48-54 of Yasuhiro). Yasuhiro does not teach or suggest the combination of features in each of Claims 1, 13, 14 and 17, and thus, does not teach or suggest the claimed invention.

In contrast to Applicants' Claims 1 and 13, the compositions of Yasuhiro contain a majority amount of the polypropylene component. In addition, Yasuhiro discloses that when the components of the composition are blended in the preferred ranges, which include 60 to 80 parts by weight polypropylene, and 5 to 15 parts by weight olefin copolymer rubber, the blended components improve the fluidity, rigidity and impart strength of the polypropylene resin composition (see page 4, lines 55-57). Yasuhiro desires compositions containing a majority amount of polypropylene relative to olefin copolymer rubber, and thus, teaches away from compositions containing a majority amount of the olefin copolymer relative to the polypropylene. In addition, the examples of Yasuhiro (see page 6) contain high levels of the polypropylene component (70-80 parts by weight), and much lower levels of the olefin copolymer rubber (5-15 parts by weight). Moreover, Yasuhiro does not teach or suggest the respective order of addition of the composition components as recited in Claims 14 and 17.

Therefore, for at least these reasons, Yasuhiro does not teach or suggest the claimed invention.

U.S. Patent 6,087,431 to Uchida et al. (hereinafter Uchida) discloses crosslinked thermoplastic elastomer compositions (see Abstract). Uchida discloses that the degree of crosslinking in the compositions is preferably at least 30 percent (see column 9, lines 54-59). Uchida further discloses that below 30 percent, the crosslinking is insufficient, so that the heat resistance, such as compression set, etc., will be lowered, and physical properties, such as impact resilience, etc., will be lowered. Also the degree of crosslinking in Uchida's experimental examples is 51%-

82% when both the radical initiator and crosslinking promoter are present (see Tables 2 and 3).

Applicants' claimed invention is directed to a gel-free thermoplastic elastomer composition. Uchida teaches a crosslinked composition, and thus does not teach a "gel-free" composition. Moreover, as discussed above, Uchida desires at least 30 percent crosslinks to maintain heat resistance and impact resistance, and thus, teaches away from a "gel-free" composition. Moreover, the examples of Uchida each use a weight ratio of promoter to peroxide less than four, and levels of peroxide greater than 0.075 weight percent as claimed in Applicants' invention (see Tables 2 and 3 of Uchida). Therefore, for at least these reasons, Uchida does not teach or suggest the claimed invention.

International Publication No. WO 02/24803 to Walton (hereinafter "Walton") does not teach or suggest the combination of features in each of Claims 1, 13, 14 and 17, and thus, does not teach or suggest the claimed invention. These pending claims are each directed to a combination of features not specifically taught or suggested by Walton. For example, each claim recites a composition comprising 0.075 weight percent or less peroxide, and a "peroxide to coagent" ratio from 1:4 to 1:20. Claims 1, 13 and 14 each further recites, as pertaining to the composition, an STI (shear thinning index) of 15-30, and a tan delta at 190°C of 1.05-1.40. The specific combination of the claimed peroxide and coagent levels in the claimed compositions provide compositions with these desired STI and tan delta properties (see page 21-22 (Tables 3-4) of the present specification).

Applicants have unexpectedly discovered that compositions, rheology modified with low levels of peroxide and much higher levels of coagent, relative to the level of peroxide, are especially suited for high speed extrusion, molding and calendaring operations (see pages 1 and 2 of the present specification). Applicants' compositions can be extruded at very high line speeds, and provide articles with excellent surface and odor characteristics (see page 3, lines 6-10 and 12-20 of the present specification). Applicants specifically note that the claimed features provide for compounds (compositions) that can be extruded at higher line speeds to produce a profile having much smoother surfaces, compared to compositions prepared from the

same polymers, but rheology modified by peroxide alone, or with peroxide and a coagent at a 1:2 or 2:1 ratio (see page 3, line 30 to page 4, line 2 of the specification). Moreover, if the peroxide levels are too high, or the peroxide to coagent ratio is too low, extruded profiles have lumpy surfaces, and cannot be extruded at reasonable line speeds (see page 12, lines 22-24 of the specification.)

Walton teaches a preferred "peroxide to coagent" ratio from 1:2 to 2:1 (see page 13, lines 10-15 of Walton). Moreover, although the compositions disclosed in Walton may be useful for some calendaring operations, improved compositions (such as claimed) are required for high line speed extrusion, molding and calendaring operations, and for the production of products with smooth surfaces, low odor and collapse resistance (see page 2, lines 19-25 of the present specification).

Applicants provide further comparative Examples B-E, which were prepared using the same process for Examples 1-8 of the Walton reference (see page 20, lines 12-15, and page 21 of the present specification). Comparative Examples B-E contained significantly higher levels of peroxide (0.125 to 2 wt%), and considerably lower levels of coagent (peroxide to coagent ratios of 1:1, 1:1.6 and 4:1). Applicants clearly show that these comparative examples have STI values outside the claimed range of 15-30, and have tan delta values (at 190°C) outside the claimed range of 1.05 to 1.40. If either the tan delta or STI is too high or too low, an extruded profile has poor surface appearance or insufficient collapse resistance (see page 22, line 6 to page 23, line 8). In addition, the claimed tan delta from 1.05 to 1.40 is indicative of a composition with less melt elasticity and more melt deformation, which is needed to produce articles with good surface properties in profile extrusion and higher speed calendaring processes.

Moreover, although the Walton reference discloses some broad ranges for its peroxide levels and peroxide to coagent ratios (see page 11, lines 28-31, and page 13, lines 6-16), this reference teaches preferred peroxide levels that are considerably higher than what is claimed by Applicants. Walton teaches a most preferred peroxide level from 1000 to 3000 parts by weight, and teaches a most preferred coagent to peroxide ratio from about 1:2 to about 2:1. Pending Claim 1 teaches a peroxide level of 0.075 weight percent or less, and pending Claim 2 teaches a peroxide level of 0.050

weight percent or less. Also, pending Claim 1 teaches a "peroxide to coagent" ratio from 1:4 to 1:20, and new Claim 23 teaches a ratio from 1:10 to 1:20. Moreover, the compositions disclosed in Walton are primarily used for conventional calendaring processes and thermoforming processes, and not for high line speed extrusion, molding and calendaring processes of Applicants' invention.

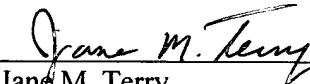
Therefore, for at least these reasons, Walton does not teach or suggest the invention as now claimed.

For at least these reasons discussed above for Walton above (International Publication No. WO 02/24803), U.S. Patent 6,548,600 does not teach or suggest the invention as now claimed.

Applicants respectfully submit that the present Amendment is now in condition for allowance, and request early notice of such action. If the Examiner has further questions, or believes further issues remain, the Examiner is invited to contact Applicant's undersigned representative

Respectfully submitted,

Date: August 14, 2006

  
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